

**What is claimed is:**

1. An aerosolization apparatus comprising:  
5 a body defining a chamber having an air inlet and an air outlet, wherein the chamber is sized to receive a receptacle containing a pharmaceutical formulation in a manner which allows the receptacle to move within the chamber;  
wherein the chamber comprises a longitudinal axis which is substantially parallel to an inhalation direction and wherein the chamber has a cross-section orthogonal to its  
10 longitudinal axis that is non-circular,  
whereby when a user inhales, air enters into the chamber through the inlet to cause the receptacle to move within the chamber so that the pharmaceutical formulation exits through an opening in the receptacle and is aerosolized for delivery to the user through the outlet.
- 15 2. An apparatus according to claim 1 wherein the receptacle is a capsule.
3. An according to claim 2 wherein the longitudinal axis of the chamber and the longitudinal axis of the capsule form an angle of less than about 45 degrees during use.
- 20 4. An apparatus according to claim 2 wherein the chamber is elongated and wherein the capsule is received lengthwise within the elongated chamber.
5. An apparatus according to claim 2 wherein the width of the chamber is less than the length of the capsule.
- 25 6. An apparatus according to claim 1 further comprising a puncturing member moveable within the chamber to create the opening in the receptacle.
7. An apparatus according to claim 6 wherein the puncture member comprises a  
30 sharpened tip for penetrating the wall of the receptacle.
8. An apparatus according to claim 6 wherein the puncture member comprises a

pair of sharpened tips for penetrating the wall of the receptacle.

9. An apparatus according to claim 6 wherein the puncture member is positioned to pierce only one end of the receptacle.

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10. An apparatus according to claim 1 wherein the inlet is shaped to create a swirling airflow within the chamber.

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11. An apparatus according to claim 1 wherein the non-circular cross-section comprises one or more projections that extend into the chamber.

12. An apparatus according to claim 1 wherein the non-circular cross-section comprises one or more indentations that extend inwardly into sidewalls of the chamber.

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13. An apparatus according to claim 1 wherein the non-circular cross-section is a polygon.

14. An apparatus according to claim 1 wherein the non-circular cross-section is oval.

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15. An aerosolization apparatus comprising:  
a body defining a chamber having an air inlet and an air outlet, wherein the chamber is sized to receive a receptacle containing a pharmaceutical formulation in a manner which allows the receptacle to move within the chamber;

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wherein the chamber comprises a longitudinal axis which is substantially parallel to an axis passing centrally through the outlet and wherein the chamber has a cross-section orthogonal to its longitudinal axis that is non-circular,

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whereby when a user inhales, air enters into the chamber through the inlet to cause the receptacle to move within the chamber so that the pharmaceutical formulation exits through an opening in the receptacle and is aerosolized for delivery to the user through the outlet.

16. An apparatus according to claim 15 wherein the receptacle is a capsule.

17. An according to claim 16 wherein the longitudinal axis of the chamber and the longitudinal axis of the capsule form an angle of less than about 45 degrees during use.

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18. An apparatus according to claim 16 wherein the chamber is elongated and wherein the capsule is received lengthwise within the elongated chamber.

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19. An apparatus according to claim 16 wherein the width of the chamber is less than the length of the capsule.

20. An apparatus according to claim 15 further comprising a puncturing member moveable within the chamber to create the opening in the receptacle.

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21. An apparatus according to claim 15 wherein the inlet is shaped to create a swirling airflow within the chamber.

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22. An aerosolization apparatus comprising:  
a body defining a chamber having an air inlet and an air outlet, wherein the chamber is sized to receive a receptacle containing a pharmaceutical formulation in a manner which allows the receptacle to move within the chamber;

wherein the chamber comprises a longitudinal axis which is substantially perpendicular to an inhalation direction and wherein the chamber has a cross-section along a plane parallel to its longitudinal axis, the cross-section being non-circular,

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whereby when a user inhales, air enters into the chamber through the inlet to cause the receptacle to move within the chamber so that the pharmaceutical formulation exits through an opening in the receptacle and is aerosolized for delivery to the user through the outlet.

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23. An apparatus according to claim 22 wherein the receptacle is a capsule.

24. An apparatus according to claim 22 further comprising a puncturing member

moveable within the chamber to create the opening in the receptacle.

25. An apparatus according to claim 22 wherein the inlet is shaped to create a swirling airflow within the chamber.

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26. A method of aerosolizing a pharmaceutical formulation, the method comprising:

providing a receptacle containing a pharmaceutical formulation;

inserting the receptacle into a chamber having a non-circular cross section;

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inhaling through an opening in the housing to cause air to flow into the chamber thereby causing the receptacle to move about the non-circular cross section to aerosolize the pharmaceutical formulation.

15 27. A method according to claim 26 wherein the receptacle is a capsule.

28. A method according to claim 27 wherein the chamber is elongated and wherein the capsule is inserted lengthwise into the elongated chamber.

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